REMARKS

Applicant respectfully traverses and requests reconsideration.

Applicant wishes to thank the Examiner for the notice that claims 25-31 are allowed.

Claims 1-7, 9-11, 14-17, 23, 24 and 33 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Joffe in view of Krishna. Joffe is directed to, for example, an Ethernet based asynchronous transfer mode system that transmits a frame of cells or frames to a network. As to claim 1, the office action cites Joffe as allegedly disclosing an execution pipeline of a programmable processor having a depth less than or equal to a plurality of programs and cites column 9, line 45 to column 10, line 41 as allegedly teaching this subject matter. However, Joffe discloses a system where the number of tasks is less than the pipeline depth and Applicant claims the opposite – the number of tasks are equal to or greater than the depth of the pipeline.

For example, the office action on page 6 states "the execution pipeline has seven stages for seven tasks…Therefore, the execution pipeline has a depth equal to the plurality of programs.". However, the cited portion does not appear to teach this subject matter. To the contrary, the cited portion actually refers to a seven stage pipeline wherein the stage t0, namely the task select stage, selects an "active task" (see column 9, line 47). There is no mention of "seven tasks" in the cited portions. In fact, Joffe instead teaches that "At most <u>four</u> tasks (one for each hardware task) may be <u>Active</u> at the same time. Each <u>active task</u> is scheduled for execution once every four clock cycles" (column 8, lines 61-65). (Emphasis added). As such, it appears that Joffe teaches a different pipeline execution approach wherein the pipeline actually has a depth greater than (seven) the plurality of programs (at most four active programs). Accordingly, Applicant respectfully submits that the claims are in condition for allowance.

Alternatively, or in addition to the above remarks, Applicant also respectfully submits that Joffe also does not teach what is alleged with respect to other claimed subject matter. For example, the office action states that Joffe teaches that "the number of the plurality of programs that are interleaved is greater than or equal to the depth of the pipeline." (Office action, page 7). However, the cited portions, namely column 7, lines 44-49 and column 8, lines 8-15 do not make mention of any number of tasks that are interleaved. In fact, it appears that the cited portions are silent as to the number of tasks being interleaved. Also, Applicant respectfully notes that the cited portion, namely column 8, lines 8-15 actually refers to hardware tasks. As noted above, it appears that the number of tasks described by Joffe that are interleaved is no more than four active software tasks which is less than the depth of the pipeline (seven stages). Accordingly, Applicant respectfully submits that the claims are in condition for allowance.

The dependent claims add additional novel and non-obvious subject matter.

As to claim 14, it is admitted that Joffe fails to teach among other things, completing execution of instructions from one of N programs before beginning execution of a second instruction of one of the N programs wherein no no-op or idle is inserted into the pipeline for the purpose of insuring that the first instruction is completed before beginning execution of a second instruction. However, Krishna has been cited as teaching this subject matter. In particular, Krishna has been cited at column 5, lines 36-38 and column 2, lines 41-45. The office action states that in the context of Krishna's teaching that local scheduling circuitry stops the main scheduler from issuing a selected operation if the latency of another operation would create a conflict with the main scheduler that the operation of insuring that a first instruction is completed before beginning execution of another instruction is done with no no-op being inserted into the pipeline. However, the cited portion actually refers to a no-op being inserted into the pipeline

and teaches an opposite approach to that claimed by Applicant. Applicant claims, for example, insuring one instruction is completed before beginning execution of another instruction based on interleaved instructions without inserting a no-op command into the pipeline. The cited portion of Krishna actually states the opposite since Krishna teaches inserting a no-op operation that is executed. For example, as the office action quotes, Krishna teaches

> "information in each entry describes either no operation (no-op) or
> an associated operation which is to be executed, is being executed,
> or has been speculatively executed." (column 5, lines 36-36)

As such, the scheduling reservoir or entries describe that a no-op is used. Applicant claims, in contrast, <u>no no-op</u> is inserted into the pipeline for the purpose of insuring that the first instruction is completed before beginning execution of a second instruction. Since Krishna teaches employing a no-op it does not teach the claimed subject matter and teaches an opposite approach. Therefore, the claim is in condition for allowance for at least this reason. Although not necessary to address, Applicant also respectfully submits that Krishna appears to be directed to a different type of architecture than that of Joffe and is not properly combinable in any event since there does not appear to be any interleaving of instructions from multiple programs identified by the Patent Office or set forth in the cited portions.

The dependent claims add additional novel and non-obvious subject matter.

As to claim 23, Applicant respectfully submits the relevant remarks made above with respect to claim 1 and as such, this claim is also allowable for similar reasons.

Claim 24 has been canceled without prejudice.

As to claim 33, Applicant respectfully notes that this claim requires, among other things, checking to see if all of said plurality of programs are completed. The office action cites column 2, lines 35-39 as allegedly teaching this subject matter. However, the cited portion does not refer

to whether a plurality of identified programs have been completed, but to the contrary, refers to the fact that a resource is not provided to a task until after every other task sharing the resource has finished accessing the resource. The task may still be uncompleted but the resource is allocated as disclosed. As such, Applicant respectfully submits that if the rejection is maintained, that a non-final action be provided with an appropriate cite by column and line number to where Joffe teaches the claimed subject matter. Applicant respectfully submits that the claim is in condition for allowance.

Claims 8 and 18 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Joffe and Krishna in view of Nguyen. Applicant respectfully submits that these claims are allowable at least as depending upon allowable base claims.

Claims 12 and 13 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Joffe and Krishna in view of Narayanaswami. Applicant respectfully submits that these claims are allowable at least as depending upon allowable base claims.

Claim 32 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Narayanaswami in view of Krishna. Applicant has canceled this claim without prejudice to expedite prosecution.

Accordingly, Applicant respectfully submits that the claims are now in condition for allowance and that a timely Notice of Allowance be issued in this case. The Examiner is invited to contact the below-listed attorney if the Examiner believes that a telephone conference will advance the prosecution of this application.

Respectfully submitted,

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By: _____

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